

Claims

- [c1] 1.A map information processing device for delivering a map information over a network,
wherein the map information has: a display data including an element data for an element constituting a map of a predetermined area; and a matching data corresponding to the display data, including a plurality of point information that have coordinates information and unique point information and represent predetermined points, and a segment information that has a unique segment information and connects a pair of point information, the matching data representing a road by the point information and the segment information,
the map information processing device comprising:
a storage storing the map information and capable of storing an update-display data having an element data for a road other than the road represented by the matching data; and
a delivery section capable of delivering the map information and the update-display data and capable of delivering a signal indicating that there is no corresponding matching data when delivering the update-display data.

[c2] 2.A map information processing device for delivering a map information over a network, wherein the map information has: a display data including an element data for an element constituting a map of a predetermined area; a matching data corresponding to the display data, including a plurality of point information that have coordinates information and unique point information and represent predetermined points, and a segment information that has a unique segment information and connects a pair of point information, the matching data representing a road by the point information and the segment information; and a display version information associated with the display data on revision status of the display data, the map information processing device comprising: a storage for storing the map information; a version information recognizer for reading and recognizing the display version information stored in the storage; and a delivery section for delivering the display data corresponding to the recognized display version information as an update-display data when it is determined that the display version information recognized by the version information recognizer is different from the display version information recognized previously.

- [c3] 3.The map information processing device according to claim 2,
wherein the storage stores a matching version information associated with the matching data on revision status of the matching data,
wherein the version information recognizer reads and recognizes the matching version information stored in the storage, and
wherein the delivery section delivers the matching data corresponding to the recognized matching version information from the storage when it is determined that the matching version information recognized by the version information recognizer is different from the matching version information recognized previously.
- [c4] 4.The map information processing device according to claim 3, wherein the version information recognizer reads and recognizes the matching version information after the delivery section delivers the display data.
- [c5] 5.The map information processing device according to claim 1,
wherein the storage stores a revision date information on a scheduled revision date of the matching data, and
wherein the delivery section sends the revision date information when delivering the display data.

[c6] 6.The map information processing device according to claim 2,
wherein the storage stores a revision date information on a scheduled revision date of the matching data, and
wherein the delivery section sends the revision date information when delivering the display data.

[c7] 7.A map information processing device for acquiring a map information over a network,
wherein the map information is stored in a storage and is provided with: a display data including an element data for an element constituting a map of a predetermined area; and a matching data corresponding to the display data, including a plurality of point information that have coordinates information and unique point information and represent predetermined points, and a segment information that has a unique segment information and connects a pair of point information, the matching data representing a road by the point information and the segment information,
the map information processing device comprising:
a map information acquiring section for acquiring the display data and the matching data from the storage;
and
a determining section for determining whether the display data acquired by the map information acquiring

section is an update–display data having an element data for a road other than the road represented by the matching data and generates a signal indicating that there is no corresponding matching data when determining that the display data is the update–display data.

- [c8] 8.A map information processing device for acquiring a map information over a network,
wherein the map information is stored in a storage and is provided with: a display data including an element data for an element constituting a map of a predetermined area; a matching data corresponding to the display data, including a plurality of point information that have coordinates information and unique point information and represent predetermined points, and a segment information that has a unique segment information and connects a pair of point information, the matching data representing a road by the point information and the segment information; and a display version information associated with the display data on revision status of the display data,
the map information processing device comprising:
a version information recognizer for reading and recognizing the display version information stored in the storage over the network; and
a map information acquiring section for reading the dis–

play data corresponding to the recognized display version information as an update-display data from the storage over the network when it is determined that the display version information recognized by the version information recognizer is different from the display version information recognized previously.

[c9] 9.The map information processing device according to claim 8,
wherein the storage stores a matching version information associated with the matching data on revision status of the matching data,
wherein the version information recognizer reads and recognizes the matching version information stored in the storage, and
wherein the map information acquiring section acquires the matching data corresponding to the recognized matching version information from the storage when it is determined that the matching version information recognized by the version information recognizer is different from the matching version information recognized previously.

[c10] 10.The map information processing device according to claim 9, wherein the version information recognizer reads and recognizes the matching version information after the map information acquiring section acquires the

display data.

[c11] 11.The map information processing device according to claim 8,
wherein the storage stores a revision date information on a scheduled revision date of the matching data, and
wherein the map information acquiring section acquires the revision date information when acquiring the display data.

[c12] 12.The map information processing device according to claim 11, further comprising a time piece for clocking a current date,
wherein the map information acquiring section acquires a matching data representing a road corresponding to an element data in the update–display data from the storage when determining that the current date clocked by the time piece is the scheduled revision date in the revision date information.

[c13] 13.The map information processing device according to claim 11, further comprising:
a time piece for clocking a current date; and
a display controller for changing a display form of an area corresponding to a newly added element data by having a revision of the display data into a different display form in response to a difference between the cur–

rent date clocked by the time piece and the scheduled revision date in the revision date information.

- [c14] 14.The map information processing device according to claim 1, wherein the update–display data has data structure in which an element data corresponding to a newly added area in a revision or an element data corresponding to a newly deleting area is displayed in a form different from a display form of an element data corresponding to an area in the previous display data.
- [c15] 15.The map information processing device according to claim 2, wherein the update–display data has data structure in which an element data corresponding to a newly added area in a revision or an element data corresponding to a newly deleting area is displayed in a form different from a display form of an element data corresponding to an area in the previous display data.
- [c16] 16.The map information processing device according to claim 7, wherein the update–display data has data structure in which an element data corresponding to a newly added area in a revision or an element data corresponding to a newly deleting area is displayed in a form different from a display form of an element data corresponding to an area in the previous display data.

- [c17] 17.The map information processing device according to claim 8, wherein the update–display data has data structure in which an element data corresponding to a newly added area in a revision or an element data corresponding to a newly deleting area is displayed in a form different from a display form of an element data corresponding to an area in the previous display data.
- [c18] 18.The map information processing device according to claim 8,
wherein the version information recognizer compares the display version information of the display data and the matching version information of the matching data corresponding thereto to determine whether the version information are identical,
the map information processing device further comprising a display controller for displaying a revised area in the acquired display data on a display in a form different from a form in which the previous display data is displayed on the display.
- [c19] 19.The map processing device according to claim 18,
wherein when the map information acquiring section acquires the matching data, the display controller changes the display form of the display data into a same display form of the previous display data according to the matching data.

[c20] 20. A map information processing system comprising:
a map information processing device for delivering a map information over a network, wherein the map information has: a display data including an element data for an element constituting a map of a predetermined area; and a matching data corresponding to the display data, including a plurality of point information that have coordinates information and unique point information and represent predetermined points, and a segment information that has a unique segment information and connects a pair of point information, the matching data representing a road by the point information and the segment information, the map information processing device comprising: a storage storing the map information and capable of storing an update-display data having an element data for a road other than the road represented by the matching data; and a delivery section capable of delivering the map information and the update-display data and capable of delivering a signal indicating that there is no corresponding matching data when delivering the update-display data; and
a terminal unit being connected to the map information processing device over the network in a manner capable of acquiring the map information.

[c21] 21. A map information processing system comprising:
a map information processing device for delivering a map information over a network, wherein the map information has: a display data including an element data for an element constituting a map of a predetermined area; a matching data corresponding to the display data, including a plurality of point information that have coordinates information and unique point information and represent predetermined points, and a segment information that has a unique segment information and connects a pair of point information, the matching data representing a road by the point information and the segment information; and a display version information associated with the display data on revision status of the display data, the map information processing device comprising:
a storage for storing the map information; a version information recognizer for reading and recognizing the display version information stored in the storage; and a delivery section for delivering the display data corresponding to the recognized display version information as an update-display data when it is determined that the display version information recognized by the version information recognizer is different from the display version information recognized previously; and
a terminal unit being connected to the map information processing device over the network in a manner capable

of acquiring the map information.

[c22] 22.A map information processing system comprising:
a map information processing device for delivering a map information over a network, wherein the map information has: a display data including an element data for an element constituting a map of a predetermined area; a matching data corresponding to the display data, including a plurality of point information that have coordinates information and unique point information and represent predetermined points, and a segment information that has a unique segment information and connects a pair of point information, the matching data representing a road by the point information and the segment information; and a display version information associated with the display data on revision status of the display data, the map information processing device comprising: a storage for storing the map information; a version information recognizer for reading and recognizing the display version information stored in the storage; and a delivery section for delivering the display data corresponding to the recognized display version information as an update-display data when it is determined that the display version information recognized by the version information recognizer is different from the display version information recognized previously; and

a terminal unit being connected to the map information processing device over the network in a manner capable of acquiring the map information, the terminal unit including a terminal storage storing the acquired map information,

wherein, in the map information processing device, the version information recognizer recognizes a display version information of the map information stored in the storage of the terminal unit, the delivery section delivers the display data corresponding to the display version information stored in the storage to the terminal unit when the recognized display version information is different from the recognized display version information read from the storage.

- [c23] 23. A map information processing system comprising:
- a map information processing device for acquiring a map information over a network, wherein the map information is stored in a storage and is provided with: a display data including an element data for an element constituting a map of a predetermined area; and a matching data corresponding to the display data, including a plurality of point information that have coordinates information and unique point information and represent predetermined points, and a segment information that has a unique segment information and connects a pair of point

information, the matching data representing a road by the point information and the segment information, the map information processing device comprising: a map information acquiring section for acquiring the display data and the matching data from the storage; and a determining section for determining whether the display data acquired by the map information acquiring section is an update-display data having an element data for a road other than the road represented by the matching data and generates a signal indicating that there is no corresponding matching data when determining that the display data is the update-display data; and a server unit to which the map information processing device is connected over the network in a manner capable of acquiring the map information, the server unit including a storage for storing the map information.

- [c24] 24.A map information processing system comprising: a map information processing device for acquiring a map information over a network, wherein the map information is stored in a storage and is provided with: a display data including an element data for an element constituting a map of a predetermined area; a matching data corresponding to the display data, including a plurality of point information that have coordinates information and unique point information and represent predetermined

points, and a segment information that has a unique segment information and connects a pair of point information, the matching data representing a road by the point information and the segment information; and a display version information associated with the display data on revision status of the display data, the map information processing device comprising: a version information recognizer for reading and recognizing the display version information stored in the storage over the network; and a map information acquiring section for reading the display data corresponding to the recognized display version information as an update-display data from the storage over the network when it is determined that the display version information recognized by the version information recognizer is different from the display version information recognized previously; and a server unit to which the map information processing device is connected over the network in a manner capable of acquiring the map information, the server unit including a storage for storing the map information.

[c25] 25. A map information processing system according to claim 23, wherein the map information processing device acquires an update-display data when electric power is supplied.

[c26] 26. A map information processing system according to claim 24, wherein the map information processing device acquires an update–display data when electric power is supplied.

[c27] 27. The map information processing system according to claim 23,
wherein the server unit including a travel route search section for searching for a travel route using the map information based on a current position information on a current position and a destination information on a destination, and
wherein the map information processing device includes a current position information acquiring section for acquiring a current position information on a current position and a destination information acquiring section for acquiring a destination information on a destination and acquires the update–display data when the travel route search section searches for the travel route.

[c28] 28. The map information processing system according to claim 24,
wherein the server unit including a travel route search section for searching for a travel route using the map information based on a current position information on a current position and a destination information on a destination, and

wherein the map information processing device includes a current position information acquiring section for acquiring a current position information on a current position and a destination information acquiring section for acquiring a destination information on a destination and acquires the update–display data when the travel route search section searches for the travel route.

- [c29] 29.A map information processing method for delivering a map information by a computing section over a network,
wherein the map information has: a display data including an element data for an element constituting a map of a predetermined area; and a matching data corresponding to the display data, including a plurality of point information that have coordinates information and unique point information and represent predetermined points, and segment information that have unique segment information and connect a pair of point information, the matching data representing a road by the point information and the segment information, and
wherein the computing section delivers a signal indicating that there is no corresponding matching data when delivering an update–display information having an element data for a road other than the road represented by the matching data.

[c30] 30.A map information processing method for delivering a map information by a computing section over a network,
wherein the map information is stored in a storage and is provided with: a display data including an element data for an element constituting a map of a predetermined area; a matching data corresponding to the display data, including a plurality of point information that have coordinates information and unique point information and represent predetermined points, and a segment information that has a unique segment information and connects a pair of point information, the matching data representing a road by the point information and the segment information; and a version information associated with the display data on revision status of the display data, and
wherein the computing section reads and recognizes the version information and delivers the display data corresponding to the version information as an updated data from the storage when the recognized version information is different from the previous version information.

[c31] 31.A map information processing method for delivering a map information by a computing section over a network,
wherein the map information is stored in a storage and

is provided with: a display data including an element data for an element constituting a map of a predetermined area; and a matching data corresponding to the display data, including a plurality of point information that have coordinates information and unique point information and represent predetermined points, and a segment information that has a unique segment information and connects a pair of point information, the matching data representing a road by the point information and the segment information, and wherein the computing section determines whether the acquired display data is an update-display data having an element data for a road other than the road represented by the matching data and generates a signal indicating that there is no corresponding matching data when determining that the display data is the update-display data.

- [c32] 32.A map information processing method for delivering a map information by a computing section over a network, wherein the map information is stored in a storage and is provided with: a display data including an element data for an element constituting a map of a predetermined area; a matching data corresponding to the display data, including a plurality of point information that

have coordinates information and unique point information and represent predetermined points, and a segment information that has a unique segment information and connects a pair of point information, the matching data representing a road by the point information and the segment information; and a display version information associated with the display data on revision status of the display data, and

wherein the computing section acquires the display data corresponding to the version information as an updated data from the storage when the display version information previously acquired is different from the display version information stored in the storage.

- [c33] 33.A map information processing program executing, by a computing section, a map information processing method for delivering a map information by the computing section over a network, wherein the map information has: a display data including an element data for an element constituting a map of a predetermined area; and a matching data corresponding to the display data, including a plurality of point information that have coordinates information and unique point information and represent predetermined points, and segment information that have unique segment information and connect a pair of point information, the

matching data representing a road by the point information and the segment information, and wherein the computing section delivers a signal indicating that there is no corresponding matching data when delivering an update-display information having an element data for a road other than the road represented by the matching data.

[c34] 34.A map information processing program executing, by a computing section, a map information processing method for delivering a map information by the computing section over a network, wherein the map information is stored in a storage and is provided with: a display data including an element data for an element constituting a map of a predetermined area; a matching data corresponding to the display data, including a plurality of point information that have coordinates information and unique point information and represent predetermined points, and a segment information that has a unique segment information and connects a pair of point information, the matching data representing a road by the point information and the segment information; and a version information associated with the display data on revision status of the display data, and wherein the computing section reads and recognizes the

version information and delivers the display data corresponding to the version information as an updated data from the storage when the recognized version information is different from the previous version information.

[c35] 35.A map information processing program executing, by a computing section, a map information processing method for delivering a map information by the computing section over a network, wherein the map information is stored in a storage and is provided with: a display data including an element data for an element constituting a map of a predetermined area; and a matching data corresponding to the display data, including a plurality of point information that have coordinates information and unique point information and represent predetermined points, and a segment information that has a unique segment information and connects a pair of point information, the matching data representing a road by the point information and the segment information, and wherein the computing section determines whether the acquired display data is an update-display data having an element data for a road other than the road represented by the matching data and generates a signal indicating that there is no corresponding matching data when determining that the display data is the update-

display data.

[c36] 36.A map information processing program executing, by a computing section, a map information processing method for delivering a map information by the computing section over a network, wherein the map information is stored in a storage and is provided with: a display data including an element data for an element constituting a map of a predetermined area; a matching data corresponding to the display data, including a plurality of point information that have coordinates information and unique point information and represent predetermined points, and a segment information that has a unique segment information and connects a pair of point information, the matching data representing a road by the point information and the segment information; and a display version information associated with the display data on revision status of the display data, and wherein the computing section acquires the display data corresponding to the version information as an updated data from the storage when the display version information previously acquired is different from the display version information stored in the storage.

[c37] 37.A recording medium storing, in a manner readable by a computing section, a map information processing pro-

gram executing a map information processing method for delivering a map information by the computing section over a network,
wherein the map information has: a display data including an element data for an element constituting a map of a predetermined area; and a matching data corresponding to the display data, including a plurality of point information that have coordinates information and unique point information and represent predetermined points, and segment information that have unique segment information and connect a pair of point information, the matching data representing a road by the point information and the segment information, and
wherein the computing section delivers a signal indicating that there is no corresponding matching data when delivering an update-display information having an element data for a road other than the road represented by the matching data.

[c38] 38.A recording medium storing, in a manner readable by a computing section, a map information processing program executing a map information processing method for delivering a map information by the computing section over a network,
wherein the map information is stored in a storage and is provided with: a display data including an element

data for an element constituting a map of a predetermined area; a matching data corresponding to the display data, including a plurality of point information that have coordinates information and unique point information and represent predetermined points, and a segment information that has a unique segment information and connects a pair of point information, the matching data representing a road by the point information and the segment information; and a version information associated with the display data on revision status of the display data, and

wherein the computing section reads and recognizes the version information and delivers the display data corresponding to the version information as an updated data from the storage when the recognized version information is different from the previous version information.

- [c39] 39.A recording medium storing, in a manner readable by a computing section, a map information processing program executing a map information processing method for delivering a map information by the computing section over a network,
- wherein the map information is stored in a storage and is provided with: a display data including an element data for an element constituting a map of a predetermined area; and a matching data corresponding to the

display data, including a plurality of point information that have coordinates information and unique point information and represent predetermined points, and a segment information that has a unique segment information and connects a pair of point information, the matching data representing a road by the point information and the segment information, and wherein the computing section determines whether the acquired display data is an update-display data having an element data for a road other than the road represented by the matching data and generates a signal indicating that there is no corresponding matching data when determining that the display data is the update-display data..

[c40] 40.A recording medium storing, in a manner readable by a computing section, a map information processing program executing a map information processing method for delivering a map information by the computing section over a network, wherein the map information is stored in a storage and is provided with: a display data including an element data for an element constituting a map of a predetermined area; a matching data corresponding to the display data, including a plurality of point information that have coordinates information and unique point informa-

tion and represent predetermined points, and a segment information that has a unique segment information and connects a pair of point information, the matching data representing a road by the point information and the segment information; and a display version information associated with the display data on revision status of the display data, and

wherein the computing section acquires the display data corresponding to the version information as an updated data from the storage when the display version information previously acquired is different from the display version information stored in the storage.